

### **REMARKS**

Claims 1-49 are pending in the Application.

Claims 1-49 are objected to for various informalities including undefined symbols. In this Response, Applicants have amended the objected claims according to the Examiner's suggestions on page 2 of the Office Action.

Applicants express appreciation to the Examiner for indicating allowable subject matter. Accordingly, Applicants have amended claims 6 and 29 to put them in independent form by including all limitations of base and intervening claims. Claims 7-12 all depend from claim 6, and claims 30-35 all depend from claim 29. Therefore Applicants submit that claims 6-12 and 29-35 are now in allowable form, according to the conditions set forth in part 8 of the Office Action.

#### **I. Response to §102(e) and §103(a) rejections**

Claims 1-2, 5, 18, 24-25, 28, 41 and 46-47 are rejected under 35 USC §102(e) as being anticipated by U.S. Patent No. 6,108,373 ("Farques"). Claims 3-4, 26-27, 44-45 and 48-49 are rejected under 35 USC § 103(a) for obviousness over Farques. Claims 13-14, 19-23, 36-37 and 42-43 are rejected under 35 USC § 103(a) for obviousness over Farques in view of U.S. Patent No. 6,542,558 ("Schulist"). The Examiner cites to Farques for teachings related to determining the ratio of energy per bit to the noise spectral density ( $E_B/N_O$ ) in digital transmissions, and to Schulist for teachings related to scaling reference signal-to-noise ratio (SNR) values.

A proper claim rejection under 35 U.S.C. §102 must cite a reference that discloses all elements/features/steps of the claim. See, e.g., *E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 7 USPQ2d 1129 (Fed. Cir. 1988). Therefore, every claimed feature of the invention must be represented in the applied reference to constitute a proper rejection under 35 U.S.C. §102. Similarly, for a proper rejection of a claim under 35 U.S.C. §103 for obviousness in view of a combination of references, the cited combination of references must disclose, teach, or suggest, either implicitly or explicitly, all elements/features/steps of the

claim. *See, e.g., In re Dow Chemical*, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988), and *In re Keller*, 208 U.S.P.Q.2d 871, 881 (C.C.P.A. 1981). In the present case Farques, considered either alone or in combination with Schulist, fails to teach or suggests all limitations of any independent claim.

In each independent claim Farques fails to anticipate at least one limitation. In claims 1, 18, 19, 36, 41 and 42 the feature not anticipated is associating a count of symbols with a value of an SNR-related parameter. In independent claims 13 and 24, the feature not anticipated is correlating a count of symbols with a value of an SNR-related parameter.

In part 4 of the Office Action, the Examiner credits Farques with teaching “associating the count with a value of the SNR-related parameter.” For support, the Examiner cites to Farques col.6, lines 3-25 and also to item 63 “ratio calculating means.” However, nothing in the passage cited from Farques teaches an association between a count of symbols and an SNR-related parameter. That is, Farques fails to teach an association method as described in the present Application, whereby a symbol count is associated with an SNR-related parameter such as noise variance. Application, p. 17 ln. 11 to p. 18, ln. 10. At most, Farques teaches a calculation method, not an association method.

Farques relies on ratio calculating means 63 to perform a calculation based on input from two counters: counter 62, which counts the number NBEE of erroneous symbols, and counter 64, which counts the number NBET of total symbols. Farques, col. 6, ln. 3-7. Calculating means 63 then computes the ratio of error symbols to total symbols as NBEE/NBET. Farques, col. 6, ln. 8-10. Alternatively, Farques’ method computes the ratio of error symbols to total symbols as (NBET-NBEO)/NBET, which still requires input from two counters – one for total symbols NBET and another for optimal symbols NBEO. Farques, col. 6, ln. 12-15.

On the other hand, the present application teaches a more elegant method for determining an SNR-related parameter – a method that relies only on input from a counter. In this method, received symbols are counted by a counter only when the symbols fall within a predetermined

collection area defined in an I-Q plane. Application, p. 15, ln. 3-15. The total count, which may represent a probability, is then referenced to a lookup table that associates (or correlates) an SNR-related parameter with the probability. Application, p.17 ln. 11 to p. 18 ln. 10. Thus, no calculation is required. The method elegantly employs a counter and lookup table to associate (or correlate) a total count to an SNR-related parameter, resulting in faster processing time and lower memory requirements.

Each independent claim 1, 13, 18, 19, 24, 36, 41 and 42 includes a limitation directed to associating or correlating a symbol count with a value of an SNR-related parameter step. Because Farques fails to teach this limitation, and because Schulist is not relied upon to teach this limitation, the rejections of all independent claims should be withdrawn. Applicants therefore respectfully request that these claims, as well as all dependent claims, be passed to issuance.

In part 7 of the Office Action, the Examiner combines Farques and Schulist to form various obviousness rejections. With reference to the obviousness rejections of claims 14, 20, 37 and 43, the Examiner credits Schulist with teaching scaling a symbol with a scaling factor, and for support, cites to Schulist at col. 7, ln. 19-58. Later in part 7, the Examiner credits Schulist with teaching *quantizing* a scaled symbol, and for support, cites to the very same passage from Schulist (col. 7, ln. 19-58) previously credited as teaching scaling. Applicants submit that Schulist fails to teach quantizing a scaled symbol.

Schulist at col. 7, ln. 19-58 discusses scaling only. Specifically, Schulist discusses scaling by adjusting the value of a reference SNR (col. 7, ln. 35-36) and by modifying the reference SNR value (col. 7, ln. 55). However, Schulist says nothing about *quantizing* a scaled symbol. In the present invention, symbols are first scaled, then quantized in order to fix a delta between successive quantum levels of scaled symbols, for encoder/decoder compatibility. See Application p. 13, ln. 9 to p. 14, ln. 13; Fig. 3 steps 302 and 304. Neither Farques nor Schulist teaches or suggests quantizing symbols, therefore no combination of Farques and Schulist

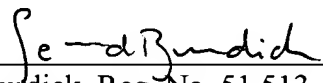
renders any of claims 14, 20, 37 and 43 obvious. Applicants submit this as independent justification for allowance of these claims.

In view of all of the above, Applicants respectfully request allowance of all claims. In papers submitted with this Response, Applicants have authorized the Commissioner to charge the petition fee as set forth in 37 C.F.R. §1.17(a)(3) in the amount of \$1,020.00 for a three-month extension, and the fee as set forth in 37 C.F.R. 1.16(h) in the amount of \$400.00 for two (2) additional independent claims, to our deposit account no. **08-3038**. Applicants believe the total fee for this filing to be **\$1,420.00**.

Applicants believe no other fees are due. The U.S. Patent and Trademark Office is hereby authorized to charge any fee due herein, fee deficiency, or credit any overpayment, to our Deposit Account No. **08-3038**. Kindly make reference to Howrey Dkt. No. **01827.0050.00US00** when debiting any fee.

Respectfully submitted,

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